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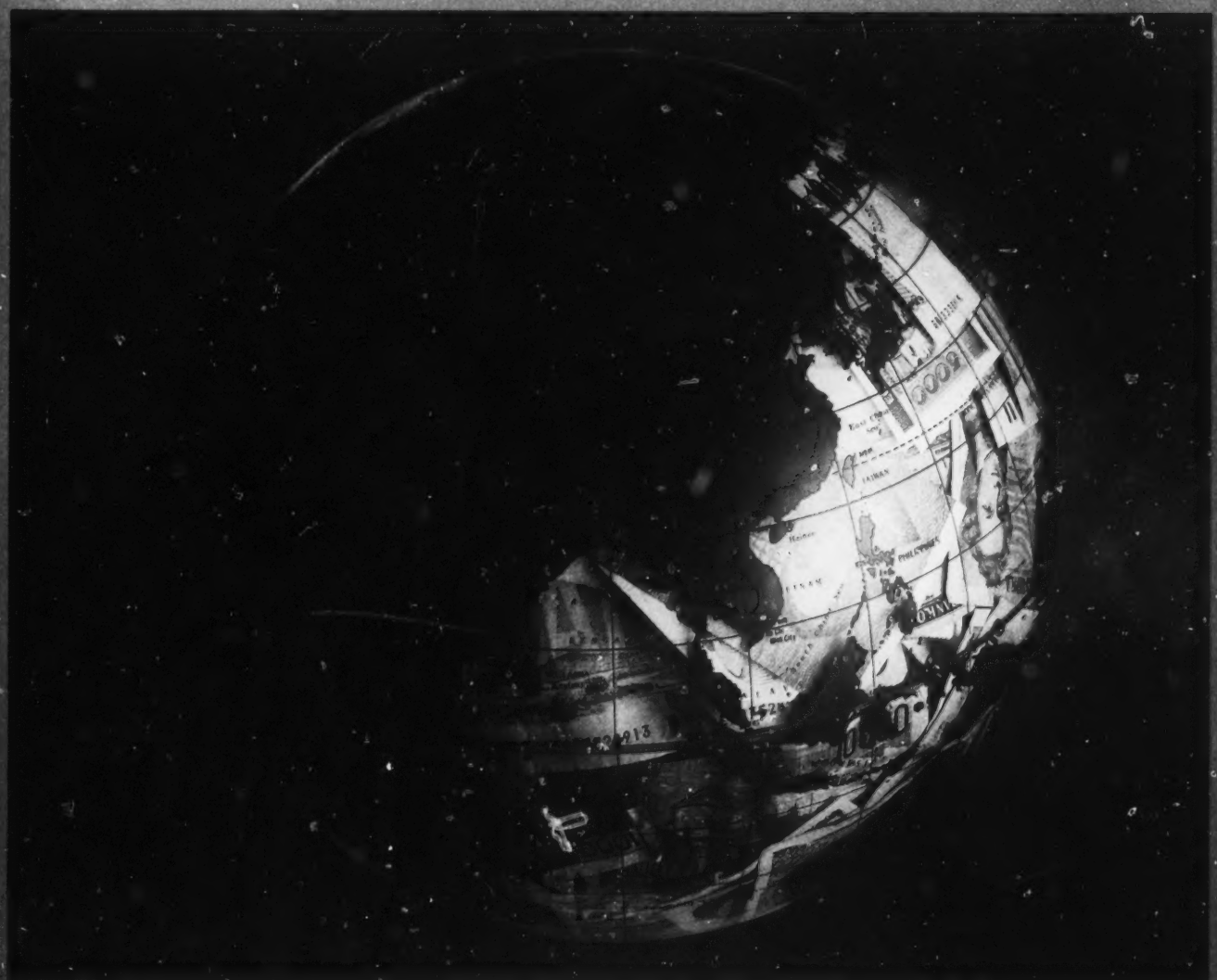


NEW GLOBAL MARKET DEVELOPMENTS Political changes around the world mean new spending possibilities

SOFTWARE GLITCH CRIPPLES AT&T NETWORK

Millions of calls are blocked during nine-hour breakdown

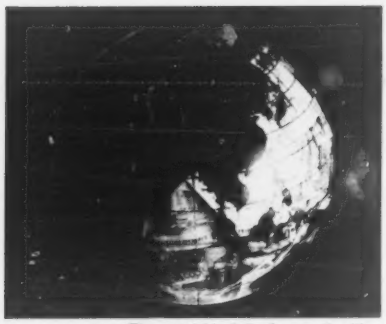
INDEPENDENTS DEMAND MFJ SAFEGUARDS

Small telcos refuse to back RHCs on easing MFJ restrictions

MONDAY, JANUARY 22, 1990 Volume 218, No. 4

Telephony

INTEGRATING VOICE & DATA COMMUNICATIONS



The world is full of opportunities for making money, even though growth in traditional telecom strongholds is minimal. Developing nations especially are beginning to burgeon with possibilities. Cover photo by Kenji Kerins, set design by Laura Doyle

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In My Opinion

High-tech Achilles' heel

A remarkable thing happened last week: AT&T's long-distance network crashed. As AT&T Chairman Robert Allen observed, a network glitch of that magnitude is unprecedented. Yet it is a sign of how far we have come in telecommunications.

AT&T attributed the foul-up to its new switching software, which, ironically, is designed to speed recovery in the event of a network failure. Ultimately, the long-distance company had to shut down its backup system to allow the network to resume normal operation.

AT&T's sportsmanship is commendable. It's tough to wipe the egg off your public face and admit you screwed up somewhere along the line. Yet, if I were MCI or US Sprint, I don't think I'd jump at the opportunity to point out that AT&T's service is not as perfect as its clever advertising campaign suggests. Although that prospect is certainly tempting, a failure of that nature could happen at any time, to any carrier.

The intricacies of the intelligent network can be a blessing or a curse. If a true network failure were to occur, as happened in 1988 at Illinois Bell's Hinsdale CO, software such as what AT&T recently installed would abate the effects of the outage. That's what it's supposed to do and what it's expected to do. But when that safeguard fails or is the cause of the problem, it can knock out the network like a string of dominoes.

With the amount of intelligence being built into the network these days, it seems that software snags could become the Achilles' heel of the industry. Certainly, it is a tribute to the equipment and software manufacturers that something like this hasn't happened before. It's also noteworthy that the carriers have such high standards of equipment serviceability and that their networks are so reliable.

But what the AT&T malady should have shown everyone is that it doesn't take a fire or a flood to knock out service. Sometimes, all it takes is a confused software program.

Susan Ubis

Telephony

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INTERTEC

While Europe, North America and the Far East remain the three largest buyers of telecommunications equipment by far, the only significant growth in spending within the next year is likely to occur outside this realm.

Developing nations will see much faster growth in their network spending, as they seek to modernize and expand communications networks, according to the 1990 International Review and Forecast conducted by *Telephony's* Market Research Department. Growth of spending in the Middle East, Southeast Asia, Africa, South America and Central America will average 15%.

By contrast, growth of telecom spending in North America will remain virtually flat. In Europe and the Far East, it will average 6% and 5%, respectively. Although changes in exchange rates affect some of the totals reported, there are indications that the European market in particular did not live up to expectations last year.

While 8% growth was predicted, fueled by increased network modernization in preparation for the single market of 1992, the European market was actually off 7% from the previous year (see chart on page 42).

Yet uncertain is whether there will be any significant growth of telecommunications equipment sales this year in what is potentially the largest untapped market today: Eastern Europe and the Soviet Union. Although restrictions remain on the sale of much sophisticated telecom equipment to the Warsaw Pact nations, the rapidly changing political scene could send those restrictions the way of the Berlin Wall.

Italy Ignites

The sole bright spot in the otherwise

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New Markets *continued*

slowing European market is Italy, which vaulted into second place, behind West Germany, in European telecom spending, passing France and the United Kingdom. Italy is expected to spend $6.7 billion this year as part of its ambitious plan to upgrade its public network. That's a 15% increase over 1989 spending.

The increase is part of a four-year plan launched last year by SIP, Italy's public network provider, aimed at bringing its network up to standards set by other industrialized European countries, says Paolo Benzoni, vice president-director for SIP. Italy plans to reach a 44% penetration rate for telephone service by the end of 1993, Benzoni says, and to reduce waiting time for service requests to two weeks.

The modernization effort includes deployment of fiber optics and transmission technologies, along with 55% digitization of switching facilities by 1993. To help accomplish those goals, Italtel, one of the primary switch providers in Italy, has created a joint venture with AT&T Network Systems International to bring new technology to that market.

Spending in France and the U.K. was off from previous years, while the increase in West German spending was marginal.

In the U.K., British Telecom spent about £3 billion ($4.8 billion) upgrading both its central office exchanges and its transmission gear, according to Graeme Odgers, group managing director. The company also turned its focus overseas as part of its strategy to become the leading worldwide telecommunications service provider. In the United States, for example, BT acquired 20% of McCaw Cellular

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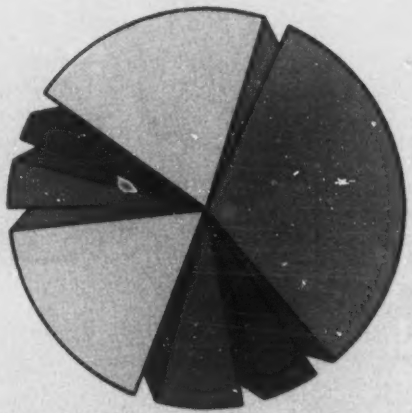
Methodology

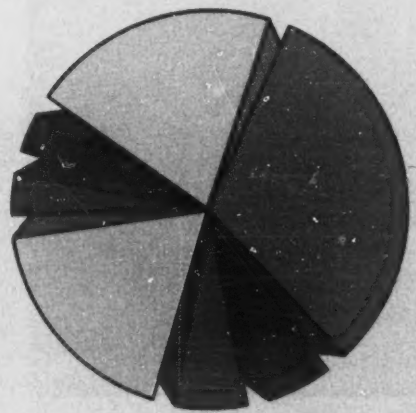
The information in this report is based on exclusive primary research conducted by *Telephony's* Market Research Department from November 1989 through January 1990.

Each of the national telecommunications administrations was queried on its network expansion budgets for 1988-1991 and the anticipated distribution of the 1990 budget over 14 major plant and facilities areas.

WORLD SPENDING

1989 $116.4 Billion		1990 $122.1 Billion	
Europe	35.9%	Europe	35.7%
North America	25.5%	North America	24.6%
Far East & Pacific	21.5%	Far East & Pacific	21.7%
USSR	6.5%	USSR	6.2%
Middle East & SE Asia	5.2%	Middle East & SE Asia	5.8%
South & Central America	3.5%	South & Central America	3.9%
Africa	1.9%	Africa	2.1%





Source: International Telephony/Market Research

New Markets *continued*

Communications, the largest cellular operator, and Tymnet, a large public and private data network provider.

Elsewhere in Europe, integrated services digital network deployment drove further digitization. West Germany's Deutsche Bundespost Telekom inaugurated its ISDN service in March 1989 and continued to digitize its network to facilitate further ISDN penetration. "Practical promotion of [ISDN] applications, which is seen as a partnership between users, manufacturers and Deutsche Bundespost Telekom, meets with lively response," says Dr. Christian Schwarz-Schilling, Telekom minister. "All told, more than 40 projects have so far been analyzed and their marketing opportunities examined."

The Swiss Telecom Department implemented the first stage of its ISDN plans, dubbed Swissnet 1, which made 64-kb/s digital service available. Full ISDN service is planned within three years. Increased demand for packet switching services also is driving the Swiss to upgrade their network, says Karl E. Wuhrmann, deputy general director of the Swiss Telecom Department.

The Austrian PTT also is gearing up for ISDN in the near future through accelerated digital switch conversion, according to Dr. Josef Sindelka, director general. The Austrian PTT is working with

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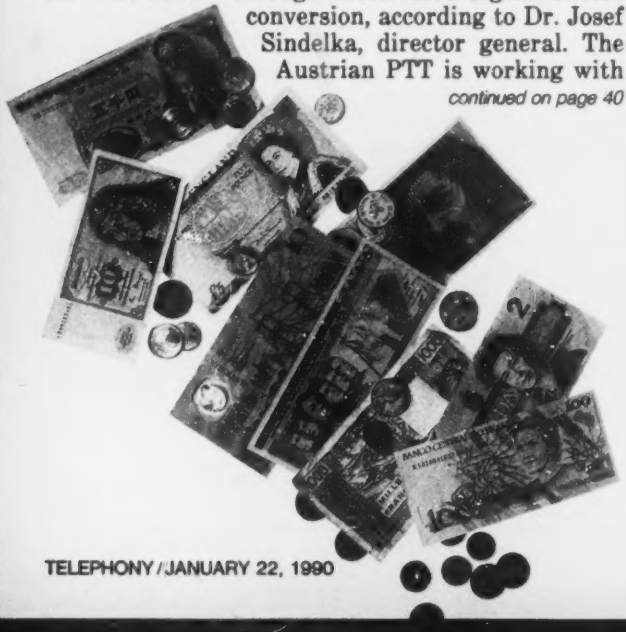
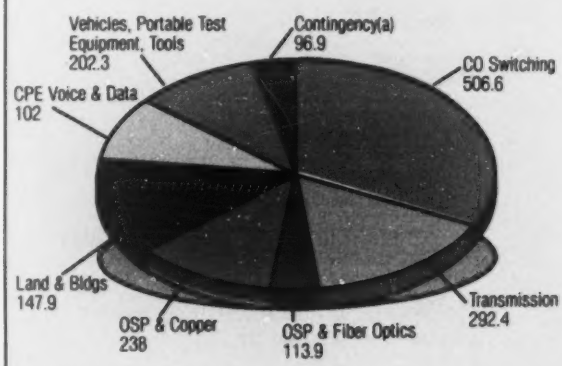


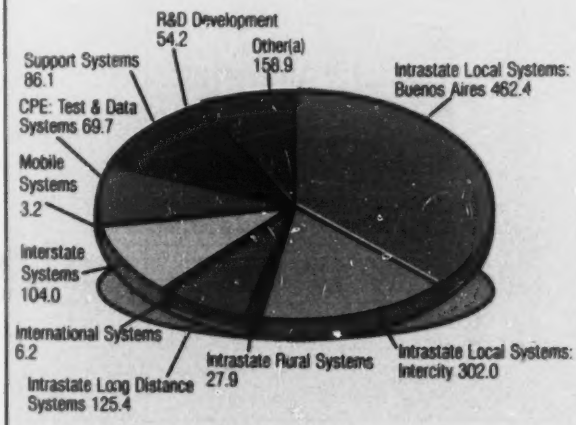
THE AMERICAS' NEWLY DEVELOPED COUNTRIES
1990 NETWORK EXPANSION
$ in millions

MEXICO: $1.7 BILLION



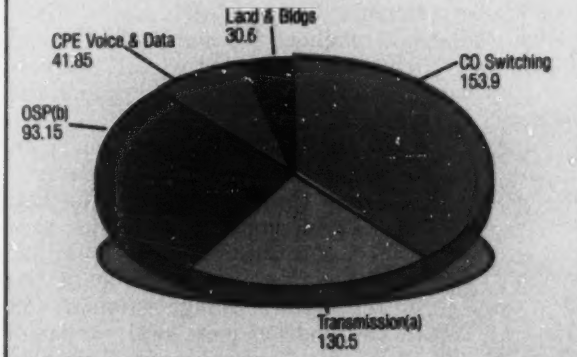
a: includes possible future acquisitions

BRAZIL: $1.4 BILLION



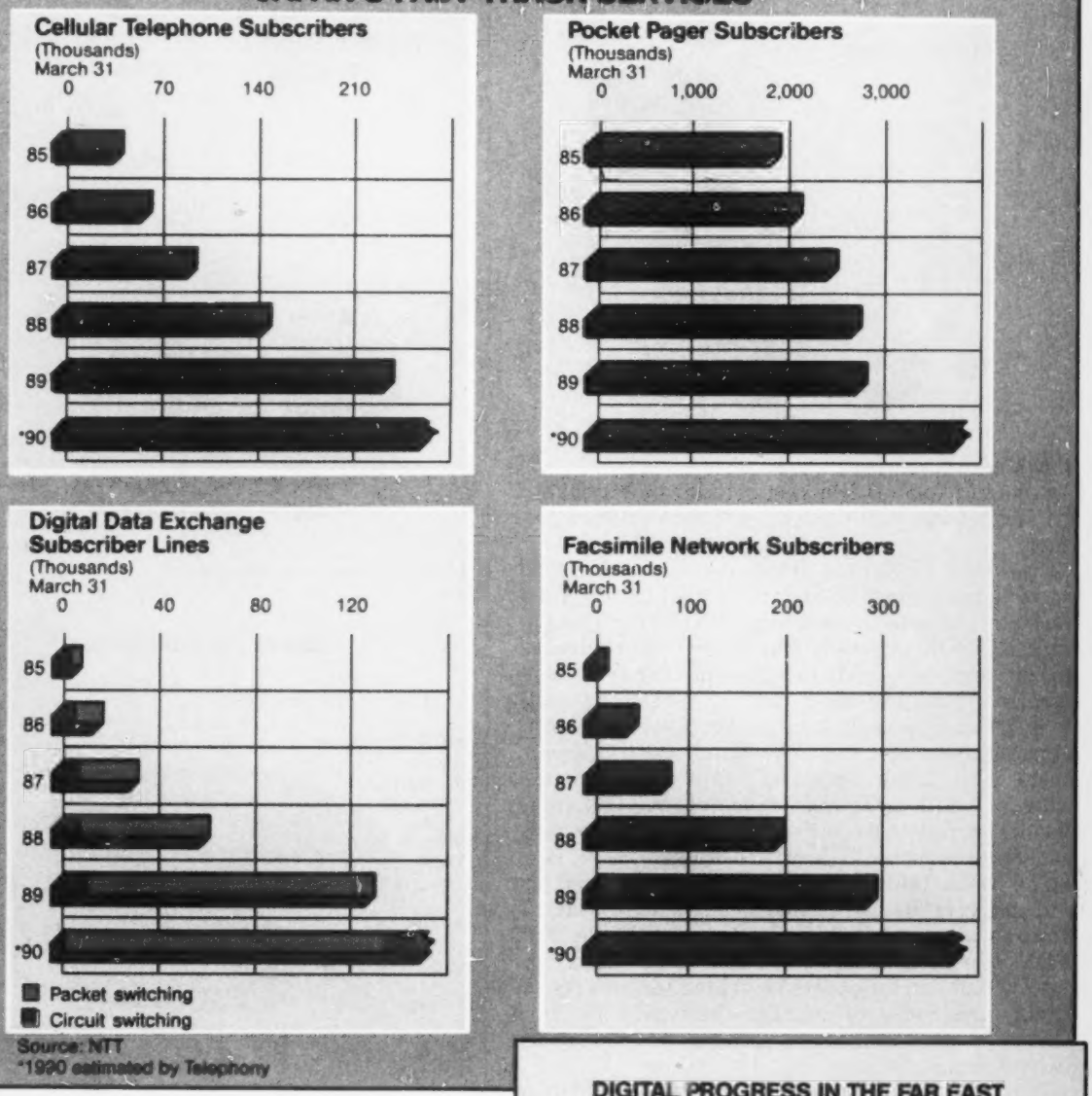
a: includes operations and technical investments

ARGENTINA: $450 MILLION



a: includes portable test equipment
b: includes fiber and metallic cable and vehicles

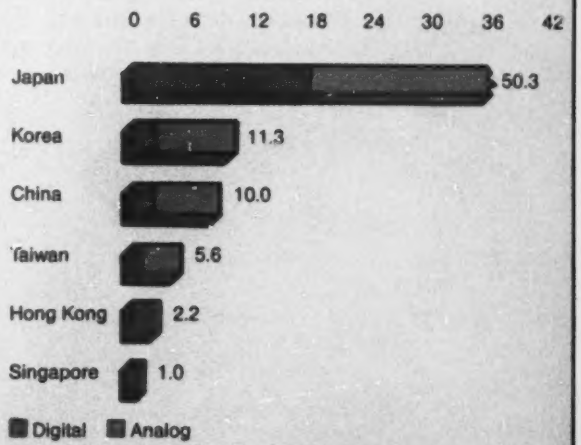
JAPAN'S FAST TRACK SERVICES



Source: NTT
*1990 estimated by Telephony

DIGITAL PROGRESS IN THE FAR EAST

In Millions of Access Lines



Source: International Telephony/Market Research

New Markets *continued*

the West Germans and Italians to interconnect digital networks.

In France, arguably Europe's ISDN leader, ISDN will be available throughout the country by the end of 1990 and will be interconnected with ISDN networks in Germany, the U.S., Finland, the U.K. and Japan.

Of the major North American market segments, only Canada projects growth, at about 5%. The Bell regional holding companies project spending at a level only 2% above this year's, and both the U.S. interexchange carriers and the Independent local exchange carriers project slightly less spending. (For details

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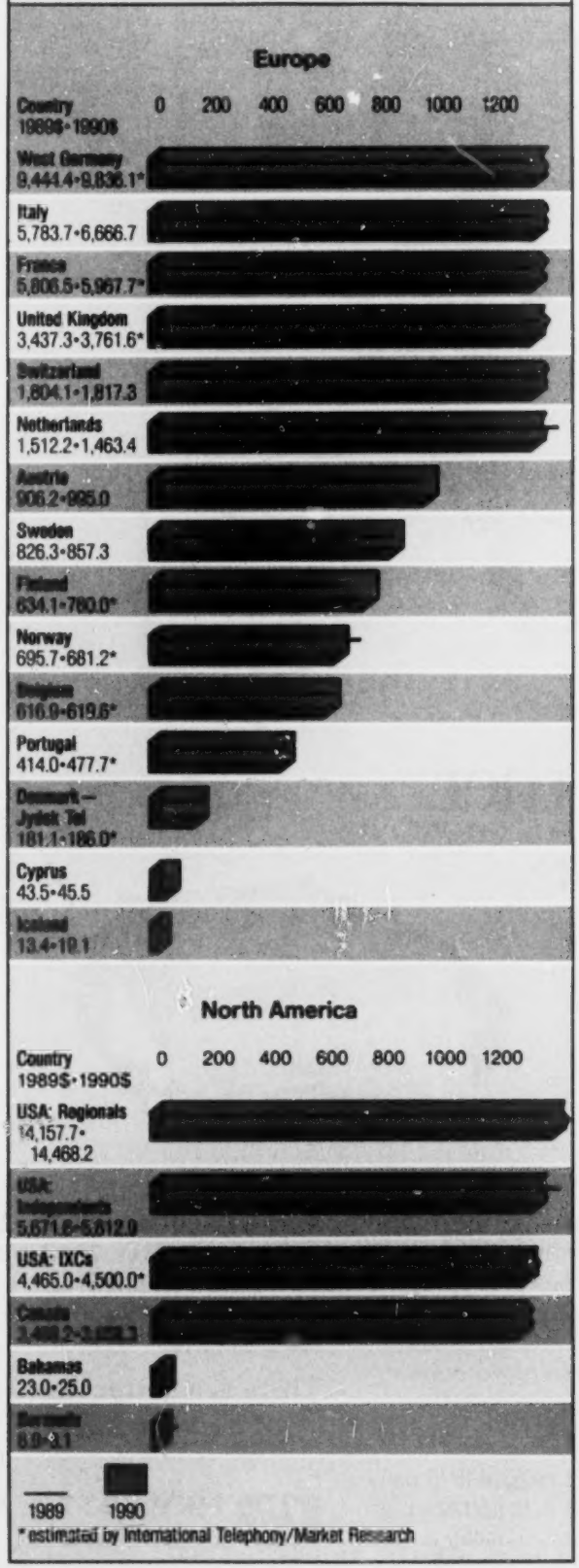
1989-90 WORLD SPENDING
$ IN MILLIONS



New Markets *continued*

on the North American market. see *Telephony, Dec. 18, 1989, page 30.)*

Telecom Canada is launching two major initiatives this year: the first is the completion of a 6333-kilometer fiber optic network linking Nova Scotia in the East with Vancouver, British Columbia, in the West and providing 565-Mb/s transmission speed. The second is network digitization which, combined with signaling system 7 deployment, will make ISDN service possible across Canada. Bell Canada, New Brunswick Telephone Co. and Alberta Government Telephones have already launched ISDN trials. An ISDN trial between the three companies began in November.

The most widespread use of ISDN to date, however, has been within the Japanese market. Nippon Telegraph and Telephone Corp. continues to introduce new services on its INS-Net 64, the wide-area ISDN launched in 1988, and to expand service availability. In June 1989, the company introduced INS-Net 1500, expanding its ISDN capabilities, according to Harvo Yamaguchi, NTT president.

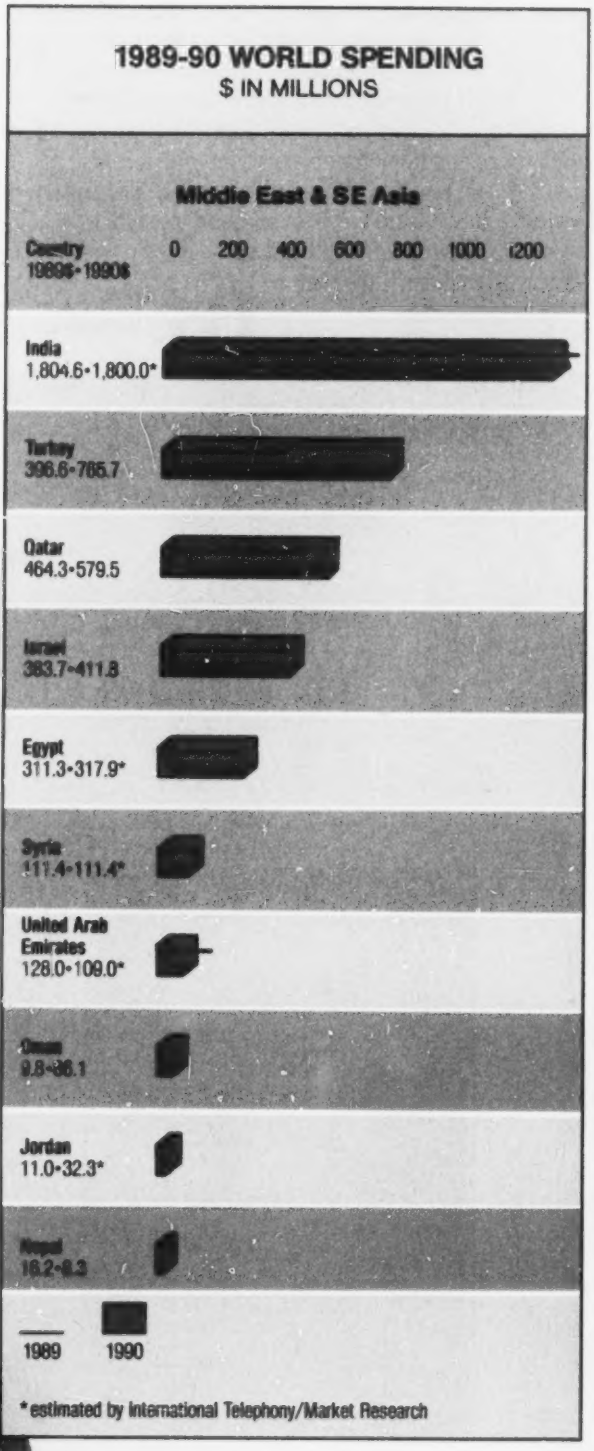
Mobile communications, facsimile networks and

continued on page 46

THE TOP 25 WORLD SPENDERS: 1990
$ IN MILLIONS

Country	
USA	24,081.1
Japan	12,142.9
W. Germany	9,836.1
Italy	6,666.7
France	5,967.7
United Kingdom	3,761.6
Canada	3,628.3
Australia	2,346.2
South Korea	2,238.8
Switzerland	1,817.3
Mexico	1,695.0
Netherlands	1,463.4
Brazil	1,411.9
Taiwan	1,334.3
South Africa	1,232.0
Austria	995.0
Sweden	857.3
Turkey	765.7
Finland	780.0
Norway	681.2
Belgium	619.6
Qatar	579.5
New Zealand	528.7
China	500.0
Portugal	477.7

Source: International Telephony/Market Research



New Markets *continued*

digital data exchange lines also represent booming markets for NTT (see chart on page 40).

Political winds blew upon the burgeoning Chinese market. But the turmoil of last summer has not significantly affected the country's massive network modernization plans. China is expected to increase its spending by two-thirds to $500 million this year.

By 1990, China expects to have a total of 17.5 million local access lines in service, a 75% increase over what was available in 1985, reaching a density of one telephone per 100 people. "The new communications services, such as mobile communications, toll direct dialing, radiopaging, data retrieval, Telefax and electronic mail, will be further expanded in 1990," says Minister Tai Fang Yang of

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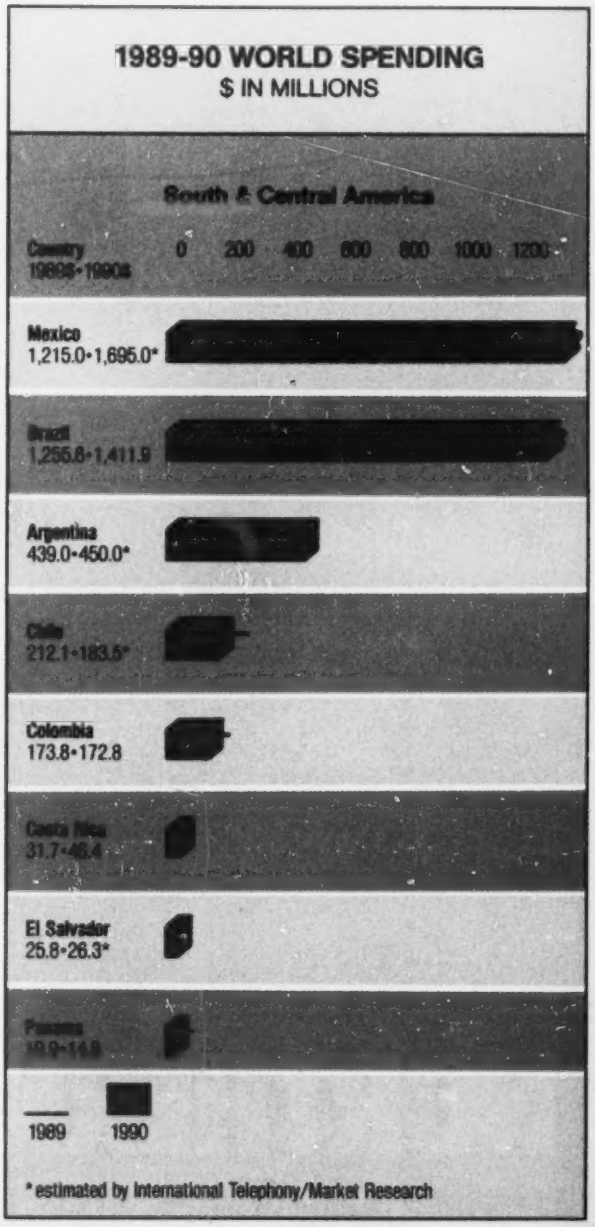

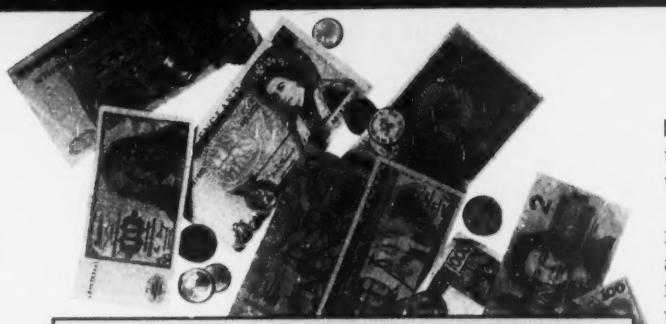

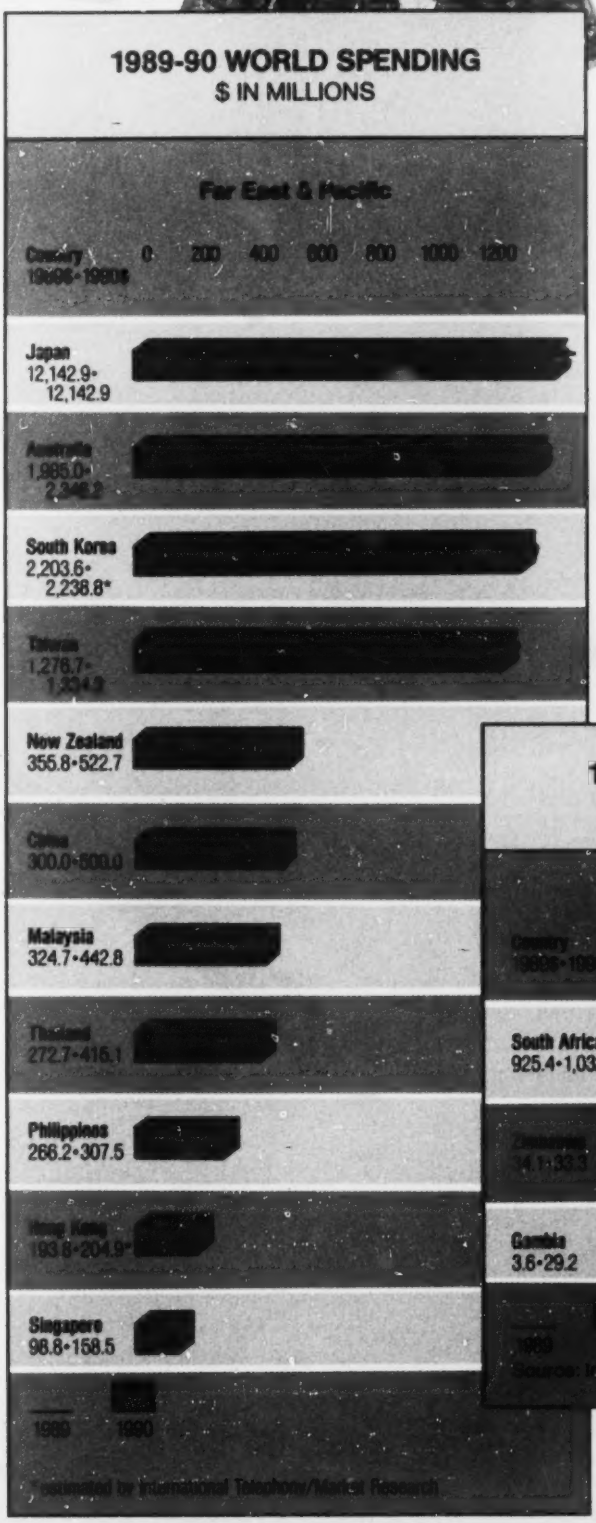

New Markets *continued*

the Chinese Ministry of Posts and Telecommunications.

Elsewhere in the Far East, the Korean Telecommunication Authority faces privatization in 1990 and, to prepare for competition, plans $2.2 billion in network improvements, including testing of electronic telephone directory database systems, construction of a cable television network for trial use and installation of 2.8 million new switching lines.

Developing Networks

Some of the most intriguing developments are in developing nations, where investment in telecommunications network enhancements are viewed as keys to economic development and growth (see chart on page 39). Mexico, which ranks 11th in worldwide telecom spending at $1.7 billion, will invest the majority of that in improved central office switches ($507 million) and transmission gear ($292 million).

As other nations in Central and South America, Africa and the Middle East also invest more heavily in both land-based and cellular networks, that market segment is certain to draw more attention. T